

CLAIMS

1-21. (CANCELLED)

22. A method of welding an upper member and a lower member each having a coating, the method comprising the steps of:

forming a hole in the upper member;

positioning the upper member above the lower member;

releasing the coating on the lower member that is located below the hole in the upper member into the atmosphere; and

introducing a filler into the hole to secure the upper member to the lower member.

23. The method as recited in claim 22 wherein the step of forming the hole includes one of drilling and punching.

24. The method as recited in claim 22 wherein the step of releasing the coating includes utilizing a welding torch.

25. The method as recited in claim 22 wherein the step of introducing the filler includes advancing the filler into the hole to contact the lower member, holding the filler in the hole to form a weld pool, and withdrawing the filler from the hole.

26. The method as recited in claim 22 further including the step of clamping the upper member and the lower member prior to the step of releasing the coating.

27. The method as recited in claim 22 wherein the upper member and the lower member are steel and the coating is zinc.

28. The method as recited in claim 27 wherein the filler is copper based wire.

29. The method as recited in claim 22 wherein the upper member and the lower member are aluminum alloy and the coating is oxide.

30. The method as recited in claim 29 wherein the filler is aluminum wire.
31. The method as recited in claim 22 further including the step of supporting the upper member and the lower member from beneath.
32. The method as recited in claim 22 wherein a gap exists between the upper member and the lower member, and the filler flows in the gap to secure the upper member to the lower member.
33. The method as recited in claim 22 wherein the filler has a filler melting temperature and the upper member and the lower member have a member melting temperature greater than the filler melting temperature.
34. A welding apparatus comprising:
 - a lower member;
 - an upper member including a hole, and the upper member is positioned over the lower member and a gap is defined therebetween;
 - a plasma arc torch to release the coating from the lower member that is located under the hole in the upper member; and
 - a filler to secure the lower member to the upper member, and the filler contacts both the lower member and the upper member and at least some of the filler flows into the gap between the upper member and the lower member.
35. The apparatus as recited in claim 34 further including a supporting member to support the upper member and the lower member from beneath.
36. The apparatus as recited in claim 34 wherein the upper member and the lower member are steel and the coating is zinc.
37. The apparatus as recited in claim 36 wherein the filler is copper based wire.

38. The apparatus as recited in claim 34 wherein the upper member and the lower member are aluminum alloy and the coating is oxide.
39. The apparatus as recited in claim 38 wherein the filler is aluminum wire.
40. The apparatus as recited in claim 34 wherein the filler has a filler melting temperature and the upper member and the lower member have a member melting temperature greater than the filler melting temperature.